

# PSC *Connection*

*Missouri Public Service Commission Publication*

*VOL. 1 NO. 2 -- June 2011*

## **POWER SUPPLY**

**Electric Generation in Missouri**





## AT A GLANCE

The main story in this edition of the *PSConnection* outlines the various types of electric generation in our state.

To meet the ever-increasing demand for power, Missouri's regulated electric utilities use a variety of sources to produce electricity.

At left is KCP&L Greater Missouri Operations Company's Sibley Generation Station, a coal-fired plant, which celebrated 50 years of operation in 2010.

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Helping you understand the complex process of setting utility rates.

## Our Mission

*To ensure that Missourians receive safe and reliable utility service at just and reasonable rates.*



### On The Cover

A view of the State Line Power Plant, located west of Joplin. The total capacity of this natural gas combustion turbine facility is approximately 596 megawatts. Westar Generating, Inc., a wholly owned subsidiary of Western Resources, and The Empire District Electric Company are partners in the plant. Empire owns 60 percent and serves as the plant operator.

# Chairman's Corner

It is with a great deal of enthusiasm that I begin my appointment as Chairman of the Missouri Public Service Commission. I would like to thank Commissioner Robert Clayton for his leadership as Chairman of the Commission the past two years. I look forward to working with my fellow colleagues as we address the regulatory issues of the day.

My fellow Commissioners and I continue our efforts to further develop programs to help consumers better understand the role and responsibilities of the Public Service Commission. Our process can be complicated even for seasoned practitioners before our Commission, but the process is an important one to understand. We are always looking for additional ways to bridge the communications gap between our agency and the general public.

To that end, we are working on a plan to create quarterly "utility days" throughout the state. Still to be finalized, the concept is designed to allow customers to meet with not only the Public Service Commission and the Office of the Public Counsel but with other state government agencies and the utility companies that serve them.

We hope that these events will provide information to consumers and also give them an opportunity to meet and talk with the Commissioners who ultimately decide the rates that they will pay and the type of service they will receive. We don't plan to eliminate all local public hearings if we introduce this new program but "utility days" would enable us to be more responsive to customers; especially those who have a service or billing issue. Keep an eye out for announcements on the program very soon.

This issue of the *PSC Connection* highlights electric power, budget billing and setting utility rates. We also have information regarding tips to help you save on your utility bill and Missouri's hot weather law.

When you flip a switch in your home, the power comes on. It seems pretty simple doesn't it? But where does that power come from? We will detail that in our feature article **It's All About Power**.

Many utility customers in Missouri have signed up for budget billing programs as a means to better control their household budgets. We explore that concept and hope that after reading the article, you will be able to determine if budget billing is right for you.

Finally, we have an article which discusses setting utility rates. Often at local public hearings, Commissioners are told by consumers to just reject a rate increase request because the timing isn't good or that the economy is bad. While rejecting a rate request solely on that basis would be extremely popular, the Commission, by law, must make its decision based on the facts of the case. Explaining the often complex process of setting utility rates is our final magazine article.

We hope you enjoy this edition of the *PSC Connection* and find it to be informative. Please feel free to share your thoughts about the magazine and give us suggested topics for future issues. Our toll-free hotline number is **1-800-392-4211**.

**Kevin Gunn**



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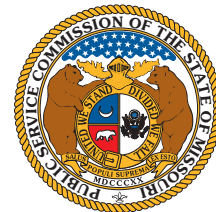
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The Missouri Public Service Commission regulates investor-owned electric, steam, natural gas, water and sewer and telephone companies. Its mission is to ensure Missouri consumers have access to safe, reliable and reasonably priced utility service while allowing those utility companies under our jurisdiction an opportunity to earn a reasonable return on their investment. The PSC also regulates manufacturers and retail dealers who sell new and used manufactured homes and modular units. The Commission was established in 1913. The PSC is comprised of five commissioners, who are appointed by the governor.



# It's All About POWER

## A Look Into Missouri's Regulated Electric Generation

**By Debbie Bernsen and Lisa Kremer**

Approximately two million residential, commercial and industrial customers rely upon electricity that is provided by the four investor-owned electric companies (Kansas City Power & Light Company, KCP&L Greater Missouri Operations Company, Ameren Missouri and The Empire District Electric Company) regulated by the Missouri Public Service Commission.

Regulated electric companies in Missouri sold approximately 61 million megawatt-hours of electricity in 2010. On average, a megawatt provides power to about 1,000 homes at a given point in time. In December 2010, Missouri residential customers paid an average of 8.11 cents per kWh (kilowatt-hour) — or the sixth lowest in the nation, according to the U.S. Energy Information Administration. This average price includes Missouri-state regulated and non-regulated utilities, such as municipal power suppliers and electric cooperatives.

Coal, a fossil fuel, is the dominant fuel for all state regulated electric generation in Missouri and supplies approximately 80 percent of the entire state's electricity market, according to the U.S. Energy Information Administration.



Ameren Missouri photo

*Ameren Missouri's Labadie Plant was first placed into operation in 1970. When all four of its units are operating at full load, the plant burns more than 1,200 tons of coal to produce 16 million pounds of steam per hour.*

Renewable energy is a term that consumers hear a lot about these days. While there may be different interpretations of the specific application of the term, renewable energy is generally classified as energy generated from natural resources that are replenished such as wind, solar, biomass and water.

Utilities are facing an increasingly complex set of environmental regulations regarding power plant emissions. Environmental concerns have encouraged utility companies to pursue power generation technologies that limit the detrimental effects from emissions on the environment. As a result, renewable sources of energy have become an important part of utility energy portfolios.

As with all sources of power, there are advantages and disadvantages with renewable sources. While providing a relatively free and





## **Coal - The Largest Fossil Fuel Used by Missouri's Regulated Electric Companies**

*The Iatan coal-fired plant near Weston, Mo. is operated by Kansas City Power & Light Company.*

non-polluting source of fuel, the production of the energy itself can be very costly, and these resources do not always provide a consistent source of energy; the wind does not always blow and the sun does not always shine. Renewable power also requires the development and installation of additional transmission lines to carry the energy, often from remote locations, to its customers for distribution.

### **TYPES OF GENERATING PLANTS**

#### **Coal-Fired**

Coal-fired generation has played a significant role in electrical production since the first power plants were built in the United States in the 1880's. Electricity generated by coal includes the crushing and pulverizing of the coal into powder so that it can burn and heat water that is contained in tubes in a boiler. The heat converts the water into steam which is used to spin the turbine shaft generating electricity. The generated electricity flows through wires to transformers where the electrical voltage is increased to enable the electricity to flow more efficiently and ultimately get to its final destinations.

All of Missouri's regulated utility companies use significant amounts of coal to generate power. Some of the largest coal-fired power plants owned and or operated by Missouri-regulated utilities include Labadie, an Ameren

Missouri plant, which generates approximately 2,400 megawatts of power and the Iatan I and II power plants, primarily owned by Kansas City Power & Light Company. Iatan I and II together generate over 1,500 megawatts of electricity.

One potential advantage of coal generation is that it is typically a low-cost production type of plant. Many coal plants have been in existence for decades and the original investment of such facilities may have already been substantially paid. Coal as a fuel, while being subject to federal environmental regulations when burned in power plants, is readily available in the United States. Potential drawbacks to coal-fired generation include the time it takes to build this type of plant and emission issues.

#### **Combustion Turbines and Combined Cycle Generation**

Combustion turbines (CT's) have become widely used by utilities to produce power and function much like a jet engine. Air entering the unit is mixed with natural gas or oil and is ignited. Hot gas from the fire is used to turn a generator and produce electricity.

One of the attractive features of combustion turbines is that they can reach full power in a very short amount of time – literally in a matter of minutes. Their lead-time placement and construction is far shorter than other types of generation, such as coal-fired and nuclear, however, their production capacity is smaller.



*Natural gas combined cycle turbines at the South Harper Facility in Cass County.*

CT's are frequently used as power "peaking" devices when electricity demand periods are highest. A potential downside to combustion turbines is their use of traditionally more costly fuel, such as natural gas or oil.

These turbines can be operated using natural gas or fuel oil. The units can transition between single and double turbine operation and can shift from natural gas to fuel oil without having to shut down.

Combined cycle generation is considered to be an efficient method to generate electricity because in addition to the use of gas turbines to produce electricity, waste heat coming from the exhaust of the combustion turbines is utilized to produce steam and generate additional electricity without additional natural gas. Emissions are also minimized in this type of technology. The Empire District Electric Company and Kansas City Power & Light are the only regulated utilities within the state of Missouri that own combined cycle plants.

### **Nuclear Plants – Powered by Uranium**

Nuclear power plants make electricity similar to coal-fired plants; both make steam which turns a turbine. Instead of using coal, nuclear plants use nuclear fission or "atom splitting" to generate steam which is used to turn the turbines. Uranium, which is a common element in the earth, is the heating fuel of nuclear power plants. Uranium undergoes fission, and energy produced by it at nuclear power plants has to be carefully controlled.

The process of preparing uranium as a fuel source involves a number of steps. Uranium is formed into pellets that are placed into rods which are organized into bundles. The bundles

are then placed into a pressurized container with water. The water is important as it acts as a coolant. Without it, the uranium would gradually overheat and eventually melt. Control rods, which absorb neutrons and reduce the number of fissions, are inserted into the bundles, and are constructed in such a manner that they may be raised or lowered. When a nuclear plant needs to be shut-down, the control rods can be completely inserted into the uranium bundle.

One of the primary differences between power generated by nuclear plants and the power generated by other types of plants, are safety issues surrounding radiation. Radiation results from fission producing the power. Construction precautions include concrete and steel liners to house reactors and prevent leakage of radioactive material. Transporting used fuel from those same sites to a repository can also pose risks.

There is one nuclear powered facility in Missouri. The Callaway Nuclear Power Plant was completed and licensed to operate by the Nuclear Regulatory Commission (NRC) in 1984. Callaway produces approximately 1,200 megawatts of power. According to Ameren Missouri, the electricity generated by the Callaway Plant is enough to meet the needs of 780,000 average households every year.

Kansas City Power & Light Company is a part owner of the Wolf Creek Generating Station, a nuclear plant located near Burlington, Kan. That plant came on line in June of 1985.



*Ameren Missouri photo*

*The Callaway Plant is operated by Ameren Missouri and is located 25 miles northeast of Jefferson City.*





## **Up In The Air**

*Kansas City Power & Light Company owns the Spearville Wind Energy Facility located in Ford County, Kansas. This facility has 99 towers and can generate 148.5 MW, enough intermittent power to serve over 33,000 homes.*

## **RENEWABLE POWER**

### **Wind**

The force of the wind has been used for hundreds of years to assist in everything from pumping water to grinding grain. In the past, windmills captured the energy of the wind. Today, wind turbines are used to harness the wind's power to generate electricity. Wind turbines, like windmills, are mounted on tall (260 to 430 foot) towers to capture the faster and less turbulent wind that occurs at higher levels. The blades act much like an airplane wing, causing lift and drag. This combination makes the rotor spin and the shaft then spins a generator to make electricity. For utility companies that use wind turbines to be connected to the power grid, a large number of wind turbines may be built close together to form a wind plant or farm.

The wind is an important renewable energy source because it can generate electricity without producing harmful emissions that may pollute the environment. However, wind farms must be sited in locations that have strong, steady winds in order to be economical. The wind is not always predictable and their effect on flying wildlife and noise are frequently brought up as issues. The appearance of multiple wind turbines can alter the landscape and can be seen as spoiling the natural view.

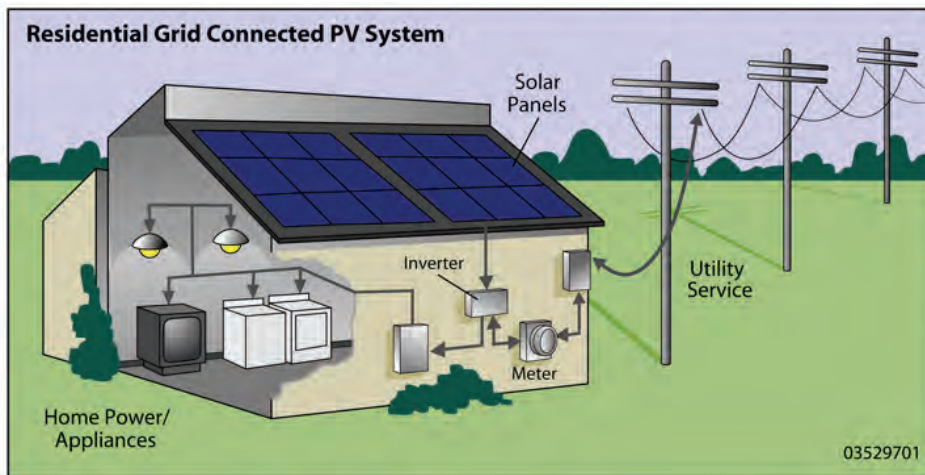
Kansas City Power & Light Company owns the Spearville Wind Energy Facility located in Ford County, Kansas. This facility has 99 towers and can generate 148.5 MW, enough intermittent power to serve over 33,000 homes.

In addition, KCP&L Greater Missouri Operations Company purchases 60 MW from NextEra Energy Resources at a wind farm in Gray County, Kansas. Ameren Missouri purchases 102 MW of wind energy from the Horizon Wind Energy's Pioneer Prairie Wind Farm (located in Iowa) to serve 26,000 homes. The Empire District Electric Company purchases a total of 255 MW from the Elk River and Meridian Way wind farms. Both of these facilities are in Kansas.

### **Solar Power**

While the sun does not always shine, when it does, it offers a tremendous source of energy. A variety of technologies convert solar energy into usable energy for buildings. The most commonly used solar technologies for homes and businesses are solar water heating, passive solar design for space heating and cooling, and solar photovoltaics for electricity.

The sun's energy can be gathered through special panels. Solar photovoltaic panels contain sunlight-absorbing semiconductors, such as silicon. These panels can be installed on rooftops that are identified as being able



U.S. Department of Energy graphic

*Solar electric systems, also known as photovoltaic (PV) systems, convert sunlight into electricity.*

to gather the sun's rays for part of the day. The sun's energy is absorbed into the cell and converted into electrons, which then flow as direct current (DC) electricity. An inverter then transforms the DC electricity into alternating current (AC) electricity.

Solar energy provides a free fuel source that does not produce any emissions. The facilities themselves are long lasting, create no noise, and require little maintenance. Although the sun does not shine all of the time, solar power is usually available during the peak time of electricity usage. Solar energy can be somewhat unreliable depending upon the placement and location of the solar cells. However, the cost of installing solar power has been a major issue in the past. Ameren Missouri recently installed five solar power systems at its downtown St. Louis headquarters to allow customers to view these systems. The installation will also provide a classroom setting to illustrate how much energy the units are generating, how solar technology works, and a program to calculate costs versus benefits associated with solar installations.

The "fuels" for solar and wind facilities are free, however that does not necessarily mean that the energy produced is inexpensive. The cost to construct and operate (operations, maintenance, taxes, leases, etc.) wind and solar facilities must be recovered through the energy produced sales. Since neither of these technologies produces energy constantly, and installation and operating costs may be significant, the cost per

kilowatt-hour may be higher than the cost of producing electrical energy at conventional power plants.

### **Hydropower**

Hydropower, or hydroelectric power, is the most common source of renewable energy in the United States today. The U.S. Energy Information Administration states that more than six percent of the country's electricity came from hydropower resources in 2008.

Hydropower technology uses flowing water to produce energy that can be captured and turned into electricity. Moving water spins the turbines which drive generators that produce the electricity. The use of water to produce energy offers specific advantages over other energy sources, but also carries unique environmental issues associated with it.

Hydropower is a clean energy source that does not produce emissions like power plants that burn fossil fuels. The disadvantages of hydropower include the cost to the surrounding



*The Powersite Dam area near Forsyth, MO is part of the Ozark Beach Hydroelectric Plant located in Taney County. It is owned and operated by The Empire District Electric Company.*



## DID YOU KNOW?

Every three years, regulated electric utilities in Missouri complete an analysis of the options that are available to meet consumer energy needs. They are required by Commission rule to file their analysis, known as an Integrated Resource Plan (IRP), with the Public Service Commission.

The IRP looks at the next 20 years and provides a description of the company's projections for future generation to meet the needs of consumers, as well as to maintain system reliability. Other factors such as environmental regulations, energy efficiency and affordable costs are all considered in making decisions on how best to plan to meet these needs.

While the Commission does not approve or reject IRPs, the Commission does determine if regulated electric companies are utilizing an adequate planning process.



environment as land is drained or flooded to accommodate the construction of a dam. This can have a significant impact on rivers and wildlife. Hydropower depends on an available water supply, and dams can be both time consuming and expensive to build. Permitting can also be difficult to obtain.

Ameren Missouri owns and operates three hydroelectric plants: the Keokuk plant in Keokuk, Iowa, the Osage plant in Lakeside, Missouri and the Taum Sauk plant (which is a pumped storage plant) in Reynolds County, Missouri. These plants represent four percent of the company's total generation.

The Empire District Electric Company owns and operates the Ozark Beach Hydroelectric Plant located in Taney County. This facility supplies Empire with 16 MW of power. The Ozark Beach Dam, completed in 1913, forms Lake Taneycomo, which provides a recreational area to the surrounding counties.

### Biopower

Biopower is the use of biomass to generate electricity. Biomass can be defined as any plant or animal matter. Examples of substances that can be used for biomass power are wood, crop wastes, energy crops and the components of municipal solid waste systems. Biomass

sources can be burned directly to produce energy. In some instances, organic material is allowed to ferment and decompose, producing materials such as methane gas, ethanol, or methanol.

Methane gas produced at landfills is now being identified as a potential source to generate electric power. Emerging technologies such as gas-fired micro turbines may help make generating power on-site from landfill gas an economic choice. Landfill gas has also been sent off-site to be directly connected to a recovery system to heat buildings.

In 2009, Ameren Missouri announced an agreement with Fred Weber, Inc., a construction company based in St. Louis, to generate electricity from solid waste landfill gas. Combustion turbines will be installed at the Fred Weber landfill in Maryland Heights and these turbines will be fueled by methane gas from the landfill. Pattonville High School in North St. Louis County will receive landfill gas and the system is anticipated to generate enough electricity to meet the needs of approximately 10,000 homes. This system is expected to be fully operational in 2012.

KCP&L Greater Missouri Operations Company has also partnered with the City of St. Joseph to investigate building a methane gas



*Kansas City Power & Light's Montrose Power Station, a coal-fired plant located in LaDue, Mo.*

***Regulated electric companies in Missouri sold approximately 61 million megawatt-hours of electricity in 2010. On average, a megawatt provides power to about 1,000 homes at a given point in time.***

gathering system and power generation facility. The company will own and operate the plant and distribute the produced electricity through its power grid.

Ameresco, a private company that develops energy facilities, has installed a facility in Jefferson City that uses methane from the Allied Waste landfill to provide power to the City of Columbia. In addition, waste heat from the

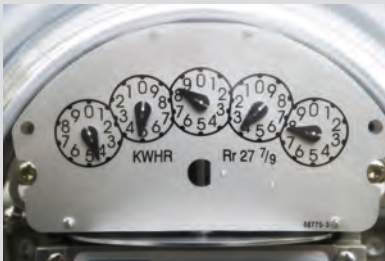
facilities' engines is being provided to Missouri Department of Corrections facilities nearby.

*-- Debbie Bernsen and Lisa Kremer work in the PSC's Engineering and Management Services Department. Other members of that department and the Energy Department contributed to this article.*

## How To Read Residential Electric Meters

The basic unit of measure of electric power is the watt. One thousand watts are called a kilowatt. If you use one thousand watts of power in one hour you have used a kilowatt-hour (kWh). Your electric utility bills you by the kWh.

The standard electric power meter is a clock-like device driven by the electricity moving through it. As the home draws current from the power lines, a set of small gears inside the meter move. The number of revolutions is recorded by the dials that you can see on the face of the meter. The speed of the revolutions depends on the amount of current drawn; the more power consumed at any one instant, the faster the gears will rotate.



When reading an electric meter, read and write down the numbers as shown on the dials from *right to left*. When the pointer is directly on a number, look at the dial to the right. If it has passed zero, use the next higher number. If the dial has not passed zero, use the lower number.

Record the numbers shown by writing down the value of the dial to your extreme right first and the rest as you come to them. Should the hand of a dial fall between two numbers, use the smaller of the two numbers.

Note that some newer electric meters use digital displays instead of dials. The difference between one month's reading and the next is the amount of energy units that have been used for that billing period.

For more information about reading your electric meter, please contact your utility provider.

*-- U.S. Department of Energy*

# Recent Missouri Legislation Designed To Increase The Use Of Renewable Energy

## **Proposition C (Renewable Energy Standards)**

While there currently is no federal policy designed to increase the types of renewable electrical generation, a number of states, including Missouri, have developed their own standards. In the fall of 2008, Missouri voters passed a ballot initiative requiring the state's four investor owned utilities to buy or generate two percent of their electricity from renewable fuels

beginning in 2011. This will increase to 15 percent by 2021.

The petition also requires that two percent of the renewable energy standard be met with solar power and requires the

utilities to provide a \$2/watt rebate for customers that install solar generation effective January 1, 2010.

Missouri Public Service Commission

rules defining the procedures became effective

September 30, 2010. Stakeholders continue to discuss the interpretation and application of the rules.

The statute and rules provide encouragement to electric utilities to move forward with the evaluation of how to include renewable power sources within their generation mix. Missouri utilities recently invested in biomass technology, solar panels and wind farms to assist in meeting the requirements of Proposition C.

## **Energy Efficiency and the Missouri Efficiency Investment Act**

The Missouri Energy Efficiency Investment Act (MEEIA)

393.1075 RSMo Supp. 2009 was passed by the Missouri legislature and signed by Governor Nixon in 2009. The purpose of the MEEIA is to provide incentives for electric companies to be innovative in their approach to developing new and additional energy efficiency programs for their customers.

The Missouri Public Service Commission held a series of workshops to receive input from various stakeholders and subsequently adopted new rules in February 2011 to assist the companies in interpreting these rules. The Commission rules provide the companies with flexibility in their program design and guidance for cost recovery. The rules will provide incentives for the companies to be innovative in their approach to developing new and more energy efficient programs to help consumers control their energy use. Under these rules, prudent program costs can be recovered by electric companies outside of a general rate case if the programs have been approved by the Public Service Commission.



# Tired of the Swings in Your Energy Bill?

**By Gay Fred**

Hot summers and cold winters can cause significant swings in your energy bill and problems for your budget. With the budget bill payment plan (budget bill), you won't have to deal with surprises when your energy bill arrives.

Budget billing is an optional payment plan that calculates your expected annual service charges based on your total energy usage during the previous year and divides it into 12 equal payment amounts. Participation in budget billing requires customers to pay their pre-determined average amount every month – even if the status shown on their bill is a credit.

Consumers need to be aware that budget billing can be adjusted during the year. Typically your account is reviewed periodically. Your actual usage may cause the budget amount to go up or down for the next budget billing period or it may result in a roll-over credit or a debt amount to be paid to bring your account back in line.

What is the advantage of budget billing? It provides you more certainty about what your electric or natural gas bill will be each month. This certainty will remove the highs and lows often experienced with warmer or colder than normal temperatures that impact your usage. An example of how an annual budget bill plan

may compare to your actual monthly usage is shown below.

"I love budget billing, before with fluctuations every month I never knew what my energy bill was going to be," said Kathy, a budget bill customer for 10 years. "Now with budget billing, it helps me to level out my budget, so I can manage other bills and can make better decisions on what else I can afford."

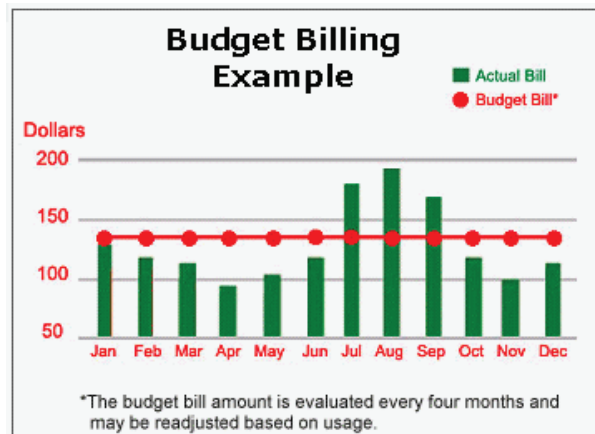
Kathy is not alone when it comes to customers who are choosing budget billing to pay an electric or natural gas bill. There are approximately 770,000 customers

on budget billing statewide and the number continues to climb.

If you are interested in budget billing, please contact your local utility company to find out more information on the program. See what your monthly budget bill amount would be and what options are available if you sign up. Keep in the mind that the only requirement to remain on the budget bill plan is to pay your bill on time. Customers may choose to leave budget billing at any time.

For more information on how to save on your energy bills, visit [www.beenergyefficient.org](http://www.beenergyefficient.org)

-- Gay Fred is the Manager of the PSC  
Consumer Services Department



***Budget billing is an optional payment plan that calculates your expected annual service charges based on your total energy usage during the previous year and divides it into 12 equal payment amounts.***

***Budget billing is reviewed periodically and may result in a "roll over" credit or a debt amount to be paid to bring your account back in line.***

***Plans and guidelines vary by utility company.***



# BEE Prepared for Summer Heat

## BEAT THE HEAT!

- ☼ Know the warning signs of heat illness such as nausea, confusion, rapid pulse, throbbing headache and dizziness. Symptoms vary according to the type of heat stress. If you are experiencing heat related symptoms seek immediate medical assistance or call 9-1-1. For more information on heat related illness, contact the Missouri Department of Health and Senior Services at 1-800-392-0272 ([www.dhss.mo.gov](http://www.dhss.mo.gov)) and the Centers for Disease Control and Prevention at 1-800-232-4636 ([www.cdc.gov](http://www.cdc.gov)).
- ☼ Stay hydrated by drinking plenty of water throughout the day. Avoid alcoholic and caffeinated beverages.
- ☼ Wear light-weight, light-colored, loose-fitting clothing.
- ☼ If you live alone, network with others to watch out for each other during hot summer days.
- ☼ Prepare a Family Disaster Supply Kit and Disaster Plan to reduce the stress of coping with the aftermath of a weather related disaster, such as a tornado. Information is available from the American Red Cross website [www.redcross.org](http://www.redcross.org), or the University of Missouri Extension website <http://extension.missouri.edu>.



## Energy Saving Tips:

- ♦ Have your cooling equipment checked by a reputable heating/cooling contractor before warm weather starts.
- ♦ Close blinds and draperies on the sunny side of your home to block the sun's rays to help keep your home cooler. As much as 50% of the heat entering your home comes through windows.
- ♦ Use fans to circulate air to help make you feel cooler, even with a higher thermostat temperature setting. In the summer, ceiling fan blades should rotate counter-clockwise when viewing from below.
- ♦ Call United Way 2-1-1 for energy assistance information, such as LIHEAP (Low Income Home Energy Assistance Program), which is a federally funded program designed to help low-income households meet their cooling and heating needs. Funding is limited and you must apply with your local Community Action Agency.
- ♦ For those without air conditioning, listen for local media announcements or call United Way 2-1-1 for Cooling Centers that may be available during periods of excessive heat.
- ♦ If you are unable to pay your utility bill, contact your utility company to see if payment arrangements are available.



Log on to [www.beenergyefficient.org](http://www.beenergyefficient.org) for more no cost, low cost and long-term energy savings tips like these for you and your family:

### No Cost:

- ♦ Close off rooms not being used directly for cooling, so most rooms used by the family will remain cool.
- ♦ Avoid moving the thermostat up or down during the day because this will waste energy and money.
- ♦ Make sure cooling vents are not blocked
- ♦ Use cold water when washing your clothes and dry on a line to avoid heat-producing dryer usage.
- ♦ Shift the use of heat producing and major appliances from mid-day to early morning or later evening if possible.

### Low Cost:

- ♦ Caulk around windows and doors.
- ♦ Replace conventional bulbs with efficient bulbs.
- ♦ Have your furnace and air-conditioner regularly inspected and maintained.
- ♦ Replace showerheads with low-flow heads.
- ♦ Seal up areas around plumbing penetrations on outer walls.

For More Information Call:  
(800) 392-4211

### Long Term:

- ♦ Add insulation in attics and have cellulose blown into walls that are not insulated.
- ♦ Replace old appliances, windows and doors with new ENERGY STAR appliances, windows and doors.
- ♦ Install more cold air returns if the house needs increased air circulation to increase heating and cooling efficiency.
- ♦ Install high efficiency furnace or heat pump and high efficiency air conditioner.
- ♦ Consider a Home Energy audit to pinpoint areas where air could escape.



Missouri Hot Weather Rule is in effect from June 1 through September 30, to protect all Missouri residential customers, including apartment building tenants, from having their electric or gas service disconnected due to non-payment when electricity or natural gas is used as the main source of cooling or to operate the only cooling equipment. The utility is not allowed to disconnect service if the National Weather Service local forecast between 6:00 AM and 9:00 PM is predicted to rise above 95 degrees or the heat index is predicted rise above 105 degrees.

# How Utility Rates Are Set



Ratemaking is a two-step process. The first step is to determine the utility's annual "revenue requirement" — the amount of money it should get from retail customers each year. The second step is to design rates that will equitably collect that revenue requirement from the utility's customers.

The determination of revenue requirement focuses on four factors: (1) the "rate of return" or profit the utility has an opportunity to earn; (2) the total investment or "rate base" upon which a return may be earned; (3) the accumulated and on-going depreciation of plant and equipment; and (4) the company's reasonable and prudent operating expenses.



When a regulated utility files for a rate increase, the Missouri Public Service Commission typically has 11 months from the filing date to make its decision.

Once the case is filed, the PSC staff -- a group of engineers, accountants and economists -- reviews the utility's books and records. This usually takes several months to complete and allows the staff to provide a non-binding recommendation to the five-member Public Service Commission. Intervenors, such as consumer groups or industrial customers, may also file recommendations in the case.

Parties will meet to discuss the issues. In some cases, agreements are reached that can settle all or some of the issues of the filing. The Commission must approve any proposed agreements.

### **Evidentiary Hearing**

Facts of a rate case are presented during formal evidentiary hearings. Expert witnesses testify and answer questions. Written testimony is also submitted by the utility, PSC staff, the Office of the Public Counsel (the state-appointed consumer representative) and the other parties.

The five members of the PSC read the written testimony, review the exhibits and briefs, hear the cross-examination, ask the witnesses questions and weigh the evidence in order to reach a result.

The Commission usually holds local public hearings in the utility's service territory -- giving customers an opportunity to express their opinions on the rate request and report any service-related or billing issues.

### **Reviewing The Record**

After the hearings are completed, a transcript of the case is prepared, and attorneys prepare briefs outlining their parties' positions. The Commissioners review the record and the facts of the case to make their decision.

The Commission will only authorize rate changes that are fair and reasonable. By law, the company must be allowed the opportunity to make enough money to meet reasonable expenses, pay interest on debts, and provide a reasonable return to stockholders.

### **The Decision**

When a decision is made, the Commission announces it through a written report and order. That order is subject to court review which may be initiated by any one -- except the PSC staff -- who has filed a timely request for rehearing with the Commission.

## **Rate Case Components**

### **1) Rate Base:**

The Commission decides what new plant has been put in service and is now "used and useful."

The new plant is added to rate base.

The Commission identifies plant that has been removed from service/reached the end of its useful life and subtracts it from rate base.

The Commission identifies, generally based upon contested depreciation studies and depreciation schedules, how much plant has been depreciated out of rate base since the company's last rate case and removes that amount from rate base. Depreciation is a decrease in value of an item based on normal use.

### **2) Return on Equity (ROE):**

Generally speaking, return on equity is shareholder profit on investment in the company.

The Commission evaluates testimony from multiple witnesses. Based upon that analysis, the Commission determines what is the appropriate ROE for a given utility.

The Commission applies that ROE to the previously determined Rate Base to reach a dollar amount necessary for the utility to get the appropriate return on its investment. ***(The utility is not guaranteed this return, simply a reasonable opportunity to earn it.)***

### **3) Expenses:**

A utility has many different types of expenses. The Commission determines what level to set each type of expense. The Commission then determines what is the total dollar amount to cover all of the utility's expenses.

### **4) Revenue Requirement:**

The Commission adds the dollar amount associated with earning the authorized ROE on the rate base to the expense total. That number gives the utility's revenue requirement.

### **5) Rate Design:**

The Commission reviews "cost of service" information/testimony and designs rates primarily to recover from each customer class the percentage of the utility's revenue requirement equal to the percentage of the utility's cost to provide service to that customer class.

Once the Commission determines how the revenue requirement will be divided among the customer classes (residential, commercial, etc.), it must determine how best to collect that revenue from the customers in each class.

For a gas company, the Commission may require some, or all, fixed costs to be in a base rate. This can avoid rate shock in the winter by spreading the fixed cost throughout the year. Fixed costs are those incurred by customers that do not change with the amount of usage.

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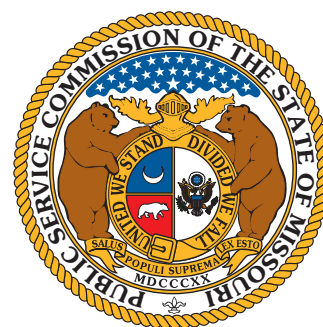
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